ű

Ė

7,1 ļ.

ļ-ā

1. contact

Mathod for perforating a non-woven sheet of fibers or filaments, according to which said sheet is brought into with a perforated cylinder, and at least perforation is produced in the sheet by means of at least one perforat ing member that is driven simultaneously translation and in rotation about its own axis, characterized, on one hand, in that there is previously fixed on the perforated \cylinder at least one insert, including, at one end, a plane surface, and provided with a recess that emerges in said plane surface, and which has a sharp edge formed by the intersection of the inner surface of said recess with said plane surface \and, on the other hand, in that a perforation in the non-woven \sheet is obtained by cutting out a portion of the non-woven sheet by shearing of the fibers or filaments of the non-woven sheet, between the sharp edge of said insert and a perforating member driven simultaneously in translation and in rotation about\its own axis.

- 2. Method according to claim 1, characterized in that, at the time of a perforating operation, said perforating member is driven simultaneously in rotation in a first direction of rotation and in transtation in a first direction opposite from the perforated cylinder, and then is driven simultaneously in rotation in a second direction of rotation opposite from said first direction of rotation and in translation direction opposite from the first direction of translation.
- Method according to claim 1, characterized in that each 3. insert is removable.
- Method according to claim 3, characterized in that each 4. insert is fixed by screwing onto the perforated cylinder.

ű

a III

j.

<u>|</u>-

ħj



Attorney Detet No. 09/902,529
Filed: July 10, 2001
Group Art Unit:

- 5. Method according to claim 2, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
- 6. Method according to claim 1, characterized in that each insert comprises a plane flange.
- 7. Method according to claim 1, characterized in that the recess of an insert has a diameter that increases starting from the sharp edge.
- 8. Apparatus for perforating a non-woven sheet of the type comprising a perforated cylinder and at least one perforating member which is capable of being driven simultaneously in translation and in rotation about its own axis, characterized in that the perforated cylinder is equipped with at least one insert, including, at one end, a plane surface, and provided with a recess that emerges in said plane surface, and which has a sharp edge formed by the intersection of the inner surface of said recess with said plane surface, and in that the perforating tool is capable of cooperating with said sharp edge so as to cut by shearing the fibers or filaments of the non-woven sheet, between the sharp edge of said insert and said perforating member driven simultaneously in translation and in rotation about its own axis.
- 9. Apparatus according to claim 8, characterized in that said perforating member is designed to be driven in rotation in a first direction of rotation when it is moved in translation in a first direction opposite from the perforated cylinder, and to be driven in rotation in a second direction of rotation opposite from said first direction of rotation during its movement in translation in the direction opposite from the first direction of translation.

Con

- 10. Apparatus according to claim 8, characterized in that each insert is removable.
- 11. Apparatus according to claim 10, characterized in that each insert is fixed by screwing onto the perforated cylinder.
- 12. Apparatus according to claim 9, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
- 13. Apparatus according to claim 8, characterized in that each insert comprises a plane flange.
- 14. Apparatus according to claim 1, characterized in that the recess of an insert has a diameter that increases starting from the sharp edge.

Please add the following new claims 15-18:

- 15. Method according to claim 2, characterized in that each insert is removable.
- 16. Method according to claim 4, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.
- 17. Apparatus according to claim 9, characterized in that each insert is removable.
- 18. Apparatus according to claim 11, characterized in that the direction of screwing of each insert corresponds to the first direction of rotation of a perforating member.

the test that the test that the

-

ħJ

Ü

A2